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SE440BX-2
Motherboard
Specification Update

Release Date: January 1999

Order Number: 725856-003

The SE440BX-2 motherboard may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are documented in this Specification Update.

CONTENTS

Specification Update for SE440BX-2 Motherboards

REVISION HISTORY

Date of Revision	Version	Description
October 1998	-001	This document is the first Specification Update for the Intel® SE440BX-2 motherboard.
December 1998	-002	Added Specification Change 1 and Errata 2-4
January 1999	-003	Modified Erratum 2. Updated status of Errata 2-4. Added Errata 5-8.

PREFACE

This document is an update to the specifications contained in the SE440BX-2 Motherboard Technical Product Specification (Order number 721632). It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools. It will contain Specification Changes, Errata, Specification Clarifications, and Documentation Changes.

Refer to the *Pentium® II Processor Specification Update* (Order number 243337) for specification updates concerning the Pentium II processor. Items contained in the *Pentium II Processor Specification Update* that either do not apply to the SE440BX-2 motherboard or have been worked around are noted in this document. Otherwise, it should be assumed that any processor errata for a given stepping are applicable to the PBA revision(s) associated with that stepping.

Refer to the *82443BX Specification Update* (Order Number 290639) for specification updates concerning the 82443BX PCI A.G.P. Controller. Items contained in the *82443BX Specification Update* that either do not apply to the SE440BX-2 motherboard or have been worked around are noted in this document. Otherwise, it should be assumed that any controller errata for a given stepping are applicable to the PBA revision(s) associated with that stepping.

Refer to the *Intel® 82371EB (PIIX4E) Specification Update* (Order Number 290635) for specification updates concerning the 82371EB PIIX4E. Items contained in the *Intel 82371EB (PIIX4E) Specification Update* that either do not apply to the SE440BX-2 motherboard or have been worked around are noted in this document. Otherwise, it should be assumed that any PIIX4E errata for a given stepping are applicable to the Printed Board Assembly (PBA) revision(s) associated with that stepping.

Nomenclature

Specification Changes are modifications to the current published specifications. These changes will be incorporated in the next release of the specifications.

Errata are design defects or errors. Characterized errata may cause the SE440BX-2 motherboard's behavior to deviate from published specifications. Hardware and software designed to be used with any given Printed Board Assembly (PBA) and BIOS revision level must assume that all errata documented for that PBA and BIOS revision level are present on all motherboards.

Specification Clarifications describe a specification in greater detail or further highlight a specification's impact to a complex design situation. These clarifications will be incorporated in the next release of the specifications.

Documentation Changes include typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the specifications.

**Specification Update for
SE440BX-2 Motherboards**

GENERAL INFORMATION

Basic SE440BX-2 Motherboard Identification Information

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
719944-205	719945-205	C1	4S4EB2X0.86A. 0009.P03	1-5
719944-206	719945-206	C1	4S4EB2X0.86A. 0009.P03	1-5
719944-207	719945-207	C1	4S4EB2X0.86A. 0009.P03	1-5
719944-208	719945-208	C1	4S4EB2X0.86A. 0011.P04	1-5
720938-205	719945-205	C1	4S4EB2X0.86A. 0009.P03	1-5
720938-206	719945-206	C1	4S4EB2X0.86A. 0009.P03	1-5
720938-207	729350-207	C1	4S4EB2X0.86A. 0009.P03	1-5
720938-208	729350-208	C1	4S4EB2X0.86A. 0011.P04	1-5
720938-209	729350-209	C1	4S4EB2X0.86A. 0011.P04	1-5
720940-205	719945-205	C1	4S4EB2X0.86A. 0009.P03	1-5
720940-206	719945-206	C1	4S4EB2X0.86A. 0009.P03	1-5
720940-207	729350-207	C1	4S4EB2X0.86A. 0009.P03	1-5
720940-208	729350-208	C1	4S4EB2X0.86A. 0011.P04	1-5
720940-209	729350-209	C1	4S4EB2X0.86A. 0011.P04	1-5
719946-204	719947-204	C1	4S4EB2X0.86A. 0009.P03	1-5
719946-205	719947-205	C1	4S4EB2X0.86A. 0009.P03	1-5
719946-206	719947-206	C1	4S4EB2X0.86A. 0009.P03	1-5
719946-207	719947-207	C1	4S4EB2X0.86A. 0009.P03	1-5
719946-208	719947-208	C1	4S4EB2X0.86A. 0011.P04	1-5

AA Revision	PBA Revision	440BX AGPSet Stepping	BIOS Revision	Notes
720930-204	719947-204	C1	4S4EB2X0.86A. 0009.P03	1-5
720930-205	719947-205	C1	4S4EB2X0.86A. 0009.P03	1-5
720930-206	719947-206	C1	4S4EB2X0.86A. 0009.P03	1-5
720930-207	719947-207	C1	4S4EB2X0.86A. 0009.P03	1-5
720930-208	719947-208	C1	4S4EB2X0.86A. 0011.P04	1-5
720932-204	719947-204	C1	4S4EB2X0.86A. 0009.P03	1-5
720932-205	719947-205	C1	4S4EB2X0.86A. 0009.P03	1-5
720932-206	719947-206	C1	4S4EB2X0.86A. 0009.P03	1-5
720932-207	719947-207	C1	4S4EB2X0.86A. 0009.P03	1-5
720932-208	719947-208	C1	4S4EB2X0.86A. 0011.P04	1-5

NOTES:

1. The PBA number or AA number is found on a small label on the component side of the board.

2. The 440BX AGPset kit used on this PBA revision consists of two components as follows:

Device	Stepping	S-Spec Numbers
82443BX	C1	SL2VH SL378
82371EB	A0	SL2MY SL2T3

3. The following errata are contained in the *Pentium® II Processor Specification Update* (Order Number 243337) for the Pentium II processor and either do not apply to the SE440BX-2 motherboard or have been worked-around in this PBA and/or BIOS revision: 3, 10-11, 17, 27-28, 32, 41, 50, 1AP-3AP. All other errata associated with the processor apply to this PBA revision.

4. The following items are contained in the *Intel® 82443BX Specification Update* (Order Number 290639) and either do not apply to the SE440BX-2 motherboard or have been worked around in this PBA and/or BIOS revision: Erratum 3. All other errata associated with the AGPset apply to this PBA revision.

5. The following items are contained in the *Intel® 82371EB (PIIX4E) Specification Update* (Order Number 290635) and either do not apply to the SE440BX-2 motherboard or have been worked around in this PBA and/or BIOS revision: None. All other errata associated with the PIIX4E apply to this PBA revision.

Summary Table of Changes

The following table indicates the Specification Changes, Errata, Specification Clarifications, or Documentation Changes which apply to the SE440BX-2 motherboard. Intel intends to fix some of the errata in a future revision of the motherboard, and to account for the other outstanding issues through documentation or specification changes as noted. This table uses the following notations:

CODES USED IN SUMMARY TABLE

Doc: Document change or update that will be implemented.

Fix: This erratum is intended to be fixed in a future revision of the motherboard or BIOS.

Fixed: This erratum has been previously fixed.

NoFix: There are no plans to fix this erratum.

Shaded: This erratum is either new or modified from the previous version of the document.

NO.	PLANS	SPECIFICATION CHANGES
1	Doc	Change to Description of Supported Memory Configurations

NO.	PLANS	ERRATA
1	NoFix	Advanced Power Management may suspend system during CD-ROM playback
2	Fixed	System may fail to boot with powered USB hub attached
3	Fixed	BIOS does not halt system after multi-bit ECC error
4	Fixed	System will not boot with ISA video adapter if Scan User Flash is enabled
5	Fixed	System BIOS does not log a memory decreased error
6	Fixed	Keyboard may fail when non-US key map is loaded
7	Fix	System BIOS does not release IRQ when no mouse is attached
8	Fixed	Power LED shows wrong color for sleeping state

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The errata described in this specification update apply to combinations of PBA revision and BIOS revision as shown in the table below. Descriptions of the individual errata referred to by number in the table below are found in the ERRATA section of this document.

PBA Revision	BIOS Revision	Errata That Apply
719945-205	4S4EB2X0.86A.0009.P03	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
719945-206	4S4EB2X0.86A.0009.P03	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
719945-207	4S4EB2X0.86A.0009.P03	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
719945-208	4S4EB2X0.86A.0009.P03[‡]	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
719947-204	4S4EB2X0.86A.0009.P03	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
719947-205	4S4EB2X0.86A.0009.P03	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
719947-206	4S4EB2X0.86A.0009.P03	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
719947-207	4S4EB2X0.86A.0009.P03	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
719947-208	4S4EB2X0.86A.0009.P03[‡]	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7

PBA Revision	BIOS Revision	Errata That Apply
729350-207	4S4EB2X0.86A.0009.P03	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
729350-208	4S4EB2X0.86A.0009.P03[‡]	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7
729350-209	4S4EB2X0.86A.0009.P03[‡]	1-8
	4S4EB2X0.86A.0011.P04	1-2, 6-7
	4S4EB2X0.86A.0012.P05	1, 7

[‡] Note: This combination of BIOS revision and PBA revision has not undergone regression testing. Use of a PBA with down-revision BIOS is an untested combination and is undertaken at the user's risk.

SPECIFICATION CHANGES

The Specification Changes listed in this section apply to the *SE440BX-2 Motherboard Technical Product Specification* (Order Number 721632). All Specification Changes will be incorporated into a future version of that specification.

1.   *Change to Description of Supported Memory Configurations*

256 MB DIMMs have been qualified on the SE440BX-2 motherboard. The following changes will be made to the Technical Product Specification:

In Section 1.1, Overview, in the second bullet under Main Memory 384 MB will be replaced with 768 MB.

In Section 1.3.1, Main Memory, maximum memory size will be changed from 384 MB to 768 MB.

The following line will be added to the table of DIMMs:

DIMM Capacity	Non-ECC DIMM Organization*	SDRAM Density	SDRAM Organization	Number of SDRAMs
256 MB	32M X 64	128 Mbit	16M X 8	8

In Section 2.1, Memory Map, the first line of Table 34 will be changed to:

Address Range (decimal)	Address Range (hex)	Size	Description
1024 K - 785408 K	100000 - 2FF00000	767 MB	Extended memory

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ERRATA

1.   *Advanced Power Management May Suspend System During CD-ROM Playback*

PROBLEM: ATAPI devices (such as CD-ROM and DVD drives) do not reset the inactivity timer that is used by Advanced Power Management to determine when to place the system into suspend mode.

IMPLICATION: When playback of an audio CD or a DVD file is the only system activity, the system will go into suspend mode when the inactivity timer expires.

WORKAROUND: Temporarily disable the Low-power standby and Shut off monitor options on the Display Properties, Screen Saver menu. This menu is available from the Windows* 95 Control Panel.

STATUS: This erratum will not be fixed.

2.   *System May Fail to Boot With Powered USB Hub Attached*

PROBLEM: If a powered USB hub is connected to the system with no USB device plugged into the hub, the system may boot very slowly or not boot at all. The hub will work normally if the system completes the boot process or if it is connected to the USB port after boot.

IMPLICATION: A powered USB hub may require multiple reboots before the system can be used.

WORKAROUND: Unplug the hub during the boot process, or plug a USB device that does not have an integrated USB hub into the onboard hub before booting the system.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0012.P05.

3.   *BIOS Does Not Halt System After Multi-bit ECC Error*

PROBLEM: When a multi-bit ECC error is detected by the BIOS a record of the error is entered into the management information log but the system is not halted.

IMPLICATION: The erroneous data will be passed to the system by the memory controller.

Single-bit errors are detected and corrected by the memory controller and entered into the management information log.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0011.P04.

4. System Will Not Boot With ISA Video Adapter if Scan User Flash is Enabled

PROBLEM: If the option to scan the user flash area during the boot process is enabled in the BIOS setup program, the system will hang when the BIOS attempts to initialize an ISA video adapter. This erratum does not affect PCI video adapters.

IMPLICATION: A user who requires an ISA video adapter will not be able to use the scan user flash area option.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0011.P04.

5. The System BIOS Does Not Log a Memory Decreased Error

PROBLEM: If the BIOS finds during the POST process that the amount of system memory has decreased, an error message is written to the screen but no record of the event is placed in the DMI event log.

IMPLICATION: The user will not have a record of failing memory that could help in diagnostic troubleshooting.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0011.P04.

6. Keyboard May Fail When Non-US Key Map is Loaded

PROBLEM: When a non-US key map is loaded, some keyboards cause the system to freeze when any of the state lock keys (CAPS lock, NUM lock or SCROLL lock) are pressed. The freeze may be only momentary or may last until the computer is restarted.

IMPLICATION: Keyboards that display this behavior are not usable with non-US key maps.

WORKAROUND: None.

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0012.P05.

7. System BIOS Does Not Release IRQ When No Mouse Is Attached

PROBLEM: The system BIOS does not release IRQ12 to be reserved for use by an ISA legacy device when no PS/2* mouse is detected at system boot.

IMPLICATION: It may not be possible to install an ISA legacy device in the system if no other IRQ is available. IRQ12 is available for assignment to another device in the Windows* 95 or Windows 98 Device Manager.

WORKAROUND: None.

STATUS: This erratum will be fixed in a future BIOS revision.

8. Power LED Shows Wrong Color for Sleeping State

PROBLEM: For systems using a dual colored power LED, the sleeping state is indicated by a blinking green light instead of a steady yellow light.

IMPLICATION: The user may believe the system is sleeping when it is running.

WORKAROUND: None

STATUS: This erratum was fixed in BIOS revision 4S4EB2X0.86A.0011.P04.